

Prevalence Of Intestinal Parasitic Infection Among Clients Attending Private Medical Laboratory Diagnostic Center In Karshi, Abuja, North Central Nigeria

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Abstract—Intestinal parasitic infection caused by helminthes and protozoan are serious public health problems in developing and developed countries. These parasite have been described as constituting the greatest single worldwide cause of illness and disease A study on the prevalence of intestinal parasitic infection was carried out among 225 clients comprised 120 males and 105 females age 11-50years between October,2019 to June,2020 .Single stool samples were collected from the clients were examined for the presence of intestinal parasites using the direct wet mount microscopic examination and the formol-ether concentration technique.Pre-tested questionnaire was used for collection of data on socio-demographic and personal health habits of the clients.Chi square statistical tests were used to analyzed the data.Overall prevalence clients examined 45(20%) had the intestinal parasites in their stool. The results shows that males were more infected 29(12.9%) than females 16(7.1%).The infection rate varied according to age group 21-30years had the highest prevalence rate 20(8.9%),followed 31-40years 12(5.3%) ,11-20years 5(2.2%) and age group 41-50years had the least prevalence 5(2.2%). The parasites isolates are Ascaris lumbricoide which had the highest prevalence of 21(9.3%), Entamoeba histolytica 14(6.2%),Hookworm 8(3.6%) and Schistosoma mansoni had the least prevalence rate 2(0.9%).The distribution of intestinal parasite

in relation to marital status revealed single had the highest prevalence rate of 26(11.6%) and married had the least prevalence rate of 19(8.4%).Distribution of intestinal parasites in relation to sources of drinking water by the clients sampled.Those that used borehole water had the highest prevalence rate 21(9.3%), followed by sachet water 16(7.1%), well water 8(3.6%), Tap water 1(0.4%), and river/stream recorded zero prevalent rate. There was no statistically significant relationship between age, sex, marital staus and sources of drinking water and prevalence of intestinal parasitic infection ($p>0.05$). This result shows that intestinal parasites was prevalence in the study area.This studies strongly recommended that the reduction in intestinal parasitic infection could be achieved by public health enlightenment campaign on the causes and prevention should be promoted and strengthened. Provision of clean portable drinking water, regular deworming,regular hand washing ,good personal and environmental hygiene will significantly reduce the burden of the infection.An integrated approach involving all stakeholders on health should be adapted with inclusion of private medical laboratory diagnostic center into government health policies on intestinal parasitic infection.

Keywords—Karshi, Private, Medical, intestinal ,Parasites, Abuja

INTRODUCTION

Intestinal parasitic infection are among the most infections worldwide [1; 2]. The public health importance of gastrointestinal infection caused by helminthes and protozoan cannot be over emphasize as the burden associated with the worm infections is enormous in developing countries [3,4;5;6].

Globally, there are more than 3.5 billion people that are infected with the intestinal worms [7]. Intestinal parasites are widely distributed throughout the world, especially in sub-sahara Africa. In this region, these infections are responsible for about 1 million death each year [8].

Helminthes are known to cause a lot of morbidity and socio-economic deprivation in population living in the tropics, where poor sanitary conditions provide optimal environmental condition for their development and transmission [6].

These parasites are endemic worldwide and have been described as constituting the greatest single worldwide cause of illness and disease [9; 10].

The Gastrointestinal parasites flourish in settings characterized by warm temperature, humidity, poor sanitation, dirty water and crowded housing [11].

Common symptoms of parasitic infections include diarrhea, abdominal pain, vomiting, weight loss, anorexia, abdominal distention, iron deficiency anemia, lack of appetite and nausea [12].

Unavailability of clean and safe drinking water, highly populated density, inappropriate disposal of waste, noncompliance with health standards, lack of adequate washing of food substances (vegetables and fruits), and consumption of improperly cooked meat lead to high prevalence of intestinal parasites [13;14].

Because many parasitic infections especially those of helminthes origin are usually asymptomatic or produce only mild symptoms, they are often neglected until serious complications or chronic pictures appear. The presence of these parasites in asymptomatic carriers has been a major source of infection to susceptible hosts, hence compounding the problems [15].

Most of parasitological survey of common parasitic infections in Nigeria has been confined to rural villages, where poor sanitation and hygiene as well as a general ignorance of the disease, provide optimal environment for transmission [16].

In small villages of Nigeria, the parasitic disease burden on school children has been shown to be high even though

many of the infections may not cause disease or mortality [17].

Epidemiological data often reveal the disease to be more prevalent in rural community and therefore this is often targeted for control. It has estimated that many people experience a considerable burden of gastrointestinal parasites which may have both immediate and long-term consequence on their health and growth.

Gastrointestinal parasite is a neglected disease and no study have described gastrointestinal parasite epidemiology in the study locality. Information on infection prevalence is useful to plan the prevention and control of gastrointestinal parasites and to assess progress in control programmes. This study was carried out to determine the prevalence of gastrointestinal parasitic infection among clients attending private medical laboratory diagnostic center in karshi, Abuja, North Central, Nigeria.

MATERIALS AND METHOD

STUDY AREA

The study was carried out at Decency Amana Medical Laboratory Karshi, Abuja, Nigeria. Karshi is a satellite town situated in Abuja Municipal Area Council in Federal Capital Territory Abuja, Nigeria. Karshi geographical coordinates are 8° 49' 40" North, 7° 33' 0" East. Karshi is about 38 km to Federal capital city of Abuja and 41 km from Karshi to Apo. Karshi has a population of about 30,000 people. The predominant tribe in Karshi is Gwandaras who constitute about 85% of the total population. Other minority tribes in Karshi are Gade, Gbagyi, Hausa, Fulani, Igbo, Idoma and Tiv [18, 19; 20; 21]

STUDY POPULATION

The study was carried out among 225 clients between the aged 11 and 50 years attending Decency Amana Medical Laboratory Karshi Abuja Nigeria. The study was carried out between October, 2019 and June, 2020.

QUESTIONNAIRE

The structured questionnaires were administered to consenting clients to obtain information on the age, gender, sources of drinking water and marital status prior to sample collection.

ETHICAL APPROVAL

Ethical approval informed consent was obtained from all the recruited clients. We obtained permission to carry out the study from the management of the Private Medical Laboratory

SAMPLE COLLECTION AND ANALYSIS

A total of 225 Stool sample were collected into a wide mouthed transparent, dry, clean, leak proof and disinfectant free plastic universal container about a large teaspoon or 10ml of fluid stool, one to each of the sampled client for their faecal samples . The collected samples were analysed using the direct wet mount microscopic examination and the formol-ether concentration technique as described by [22, 23; 24]. The results were recorded, represented in tables and analyzed using simple percentages.

STATISTICAL ANALYSIS

Chi square test was used to determine the level of significant between age, gender, marital status and sources of drinking water. P value <0.05 was considered significant at 95% confidence interval.

RESULT

This study showed that out of the 225 clients tested the overall prevalence of intestinal parasitic infection was 45(20%).The distribution among the clients based on gender showed that male had the highest prevalence of 29(12.9%) and female 16(7.1%).Although the difference is not statistically significant association between sexes Table.1.

The distribution of intestinal parasites based on the age showed that high prevalence of 20(8.9%) was recorded among the age group 21-30years, followed by 31-40years 12(5.3%), 11-20years 8(3.6%) and 41-50years had the least prevalence 5(2.2%).The result shows that there is no statistically significant relationship between the prevalence and age group Table.2.

Prevalence of intestinal parasite found in sampled. The prevalence of intestinal parasite among the overall client studied is 45(20%).The parasites isolates are *Ascaris lumbricoide* which had the highest prevalence of 21(9.3%), *Entamoeba histolytica* 14(6.2%),*Hookworm* 8(3.6%) and *Schistosoma mansoni* had the least prevalence rate 2(0.9%) There was no statistical significant difference between the marital status in relation to intestinal parasitic infection Table.3.

The distribution of intestinal parasites according to marital status, the highest prevalence was recorded among the single individual 26(11.6%) and married had the least prevalence 19(8.4%). There was no statistical significant difference between the marital status in relation to intestinal parasitic infection Table.4.

The distribution of intestinal parasites in relation to sources of drinking water by the client sampled. Those that used bore hole water had the highest prevalence rate 21(9.3%), followed by sachet water 16(7.1%), well water 8(3.6%), pipe borne water had the least prevalence 1(0.4%) and rivers/stream recorded zero prevalence of infection Table.5.

Table.1.Distribution of intestinal parasites prevalence in relation to Gender

S. No	Gender	No. Examined	No. Positive	Positive (%)
1	Male	120	29	12.9
2	Female	105	16	7.1
3	Total	225	45	20.0

P- value <0.05 was considered as significant. P -value =0.392

Table.2.Distribution of intestinal parasites Prevalence based on Age

S. No	Age	No. Examined	No. Positive	Positive (%)
1	11-20	34	8	3.6
2	21-30	97	20	8.9
3	31-40	66	12	5.3
4	41-50	28	5	2.2
5	Total	225	45	20.0

P-value<0.05 was considered as significant,-value=0.988

Table.3.Prevalence of intestinal parasites species in the study

S. No	Species	Frequency	Percentage
1	<i>Ascaris lumbricoide</i>	21	9.3
2	<i>Entamoeba histolytica</i>	14	6.2
3	<i>Hookworm</i>	8	3.6
4	<i>Schistosoma mansoni</i>	2	0.9
	Total	45	20.0

Table.4.Prevalence of intestinal parasites in relation to marital status

S. No	Marital Status	No. Examined	No. Positive	Positive (%)
1	Single	130	26	11.6
2	Married	95	19	8.4
3	Total	225	45	20.0

P-value<0.05 was considered as significant, P-value=1.000

Table.5.Distribution of intestinal parasites Prevalence according to Source of drinking water

S. No	Source of Drinking Water	No. Examined	No. Positive	Positive (%)
1	Tap(Pipe borne)	3	1	0.4
2	Borehole	67	21	9.3
3	Well	30	8	3.6
4	Sachet water	124	16	7.1
5	Rivers/Stream	1	0	0
	Total	225	45	20.0

P-value<0.05 was considered as significant. P-value=0.144

DISCUSSION

This findings revealed that out of the 225 clients tested 45(20%) were positive for intestinal parasitic infection. The prevalence of 20% in this study was lower than the 22.7% reported by [25] among patient in Abuja, 68.5% reported by [26] in Ilorin, Nigeria, [27] reported 50.0% in Jos, Nigeria, and 69.2% reported by [28] in Ethiopia. 27% reported by [29] in Brazil and [30] reported 50% in Kenya. This is similar to the 20% obtained by [31] in Gwagwalada, Abuja among patients.

This report is higher than 16.9% prevalence rate found in Eastern part of Nigeria by [32],14.3% reported by [33] in Jos, Central Nigeria and 15.2% reported by [34] in Benin City,Nigeria.15.6% reported by [35] in Malaysia,11.4% reported by [36] in Iran and 18.4% reported by [37] in Ethiopia. The difference could be explained as a result of difference in environmental factors that can, in turn lead to differences in transmission.

The prevalence of intestinal parasitic infection with respect to gender was found high in male 29(12.9%) than the female 16(7.1%).There was no statistical significant between the sexes. This finding is in consistent with the finding of [31], [38] and [39] that reported more males than females.

This disagreed with [36], and [34] who observed that infection was higher in the females than males. This is because the males always engage themselves in so many activities like agriculture and other commercial activities which may predispose intestinal parasitic infection.

In relation to age high prevalence of 20(8.9%) was recorded among age group of 21-30years,followed by 31-40years 12(5.3%) and while those between 11-20years 8(3.6%) and 41-50years had the least prevalence rate of 5(2.2%).These findings agreed with the report of [31] who reported that between the ages 16-25years had a greater prevalence .There is no significant statistical different age group and prevalence.

This study shown that the distribution of the intestinal parasites recovered in the study are *Ascaris lumbricoide*,*Entamoeba histolytica*,*Hookworm* and *Schistosoma mansoni* having a prevalence of 9.3%,6.2% ,3.6% and 0.9% respectively.*Ascaris lumbricoide* had the highest prevalence,followed by *Entamoeba histolytica* ,*Hookworm* and *Schistosoma mansoni* had the least. The predominance of *Ascaris lumbricoide* in this study is in consonance with the report of [31],[34], [40]and [41].This disagreed with [25] in Abuja,[42].and [33] who reported *Entamoeba histolytica* as the most prevalent parasites.

Prevalence according to marital status, there was high prevalence of among single 26(11.6%) than the married

19(8.4%).There is no statistically difference between marital status and prevalence. This may implies that marital status is not really a risk factor for intestinal parasitic infection.

The distribution of intestinal parasitic infection in relation to sources of drinking water shows that high infection rate recorded on borehole water 21(9.3%),followed by sachet water 16(7.1%),well water8(3.6%) and pipe borne water had the least prevalence 1(0.4%).Stream/Rivers had zero prevalence. There is no statistical significant relationship.

This disagreed with the findings of [33] and [38] who reported high prevalence from stream water. that majority of the participants that are positive consume sachet water and borehole water which could be contaminated as a result of improper processing of the sachets water, contamination by water vendors or indiscriminate drilling of borehole, poor water treatment and sitting of it near water system or pit toilet of the boreholes also more likelihood of fecal contamination of borehole water.

CONCLUSION

This study recorded a higher prevalence rate of intestinal parasitic infection among clients Attending Private Medical Laboratory Diagnostic center in Karshi Abuja North Central, Nigeria. It recommended the reduction in intestinal parasitic infection could be achieved by public health enlightenment campaign on the causes and prevention should be promoted and strengthened. Provision of clean portable drinking water, regular deworming,regular hand washing ,good personal and environmental hygiene will significantly reduce the burden of the infection.An integrated approach involving all stakeholders on health should be adapted with inclusion of private medical laboratory diagnostic center into government health policies on intestinal parasitic infection.

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CONFLICT OF INTEREST

None.

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None

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